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MONTHLY NEWS LETTER

No. 6

*John Henry*

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A Bureau Research Committee has been formed consisting of the following:

H. H. Barrows, Chairman; R. D. Marsden, Vice Chairman, W. W. McLaughlin, L.A. Jones, R. B. Gray and Wallace Ashby.

The duties of the committee will be to consider all new research projects and make recommendations to the Chief of the Bureau; and to review critically as to subject matter, adequacy of treatment, and policy, all manuscripts submitted for publication.

The President's Conference on Home Building and Home Ownership, held in Washington, December 2 to 5, was attended by about 3,000 people from all parts of the country. A limited number of copies of each committee report, in tentative form, were printed for the meeting. It is understood that larger editions of the final reports will be printed later, and that arrangements are being made to continue the work of the Conference under a more permanent organization.

One of the most important points stressed at the conference was the need for adequate housing within reach of the great mass of people whose yearly income is less than \$1,500. Much attention was given to methods of financing, with the object of greater safety and less burdensome interest and other charges for the buyers of homes. There was also much interest in technological developments which will eventually reduce costs of construction and produce more satisfactory types of buildings.

Mr. McCrory presented the report of the special group on design and construction of the Committee on Farm and Village Housing. He called attention especially to the problems of bringing existing farm homes to a higher level of convenience by installing running water, electricity, and other modern conveniences. T.A.H. Miller addressed the conference on the subject of Rammed Earth Walls. Messrs. Lyle, Dennis, Senner, Ashby and Marsden and Miss Joyce also attended meetings of the Conference.

Charles A. Bennett, in charge of the Cotton Ginning Laboratory at Stoneville, Miss. has submitted the following items:

Miss Bessie Chiz, junior clerk-stenographer, and Mr. Ray Carlton Young, principal laboratory machinist, have been added to the permanent staff of the Laboratory, which now comprises five employees, including Mr. Bennett, Mr. McWhirter and Mr. Williams.

Mr. and Mrs. Montero Bernales of Lima, Peru, visited the Laboratory on November 23, 1931. Mr. Bernales is a cotton broker and has wide interests in cotton problems.

The new office building at the Mississippi Delta Experiment Station has been supplied with gas service from the new line between Louisiana and Alabama, providing very comfortable quarters for this field office.





About 50 cotton ginning tests are accomplished each day when the cotton is available, and in addition to this the engineers have assisted the fiber scientists in drying thousands of samples received from the entire cotton belt.

Mr. Bennett spent December 14 and 15 at Wilson, Ark., inspecting Bureau-designed cotton driers under construction there.

Arthur W. Palmer, In Charge, Division of Cotton Marketing, Bu. of Agr. Economics, visited the Laboratory on December 6.

Inspectors from the General Accounting Office stopped at the Laboratory December 9 and 10 on a tour of inspection and observation of field stations of the various Governmental departments.

Melvin Williams has concluded a series of trips in which our truck has brought loads of freshly picked seed-cotton for our experiments from as far as Alabama and Texas.

After the A.S.A.E. meeting at Chicago L. A. Jones and C.E. Ramser inspected the soil erosion experiment farms at Clarinda, Iowa; Bethany, Mo.; Guthrie, Okla.; and Spur, Temple and Tyler, Texas. They found the experimental work at these farms progressing satisfactorily. Mr. Ramser then returned to his headquarters at Guthrie, Okla.

From Temple Mr. Jones proceeded to Houma, La. to look over the work on the drainage of sugar cane land carried on by B. O. Childs, thence to the Statesville Soil Erosion Experiment Farm near Statesville, N. C. He returned to Washington December 20.

An error occurred in the October News Letter, third paragraph, on page 4. The fourth sentence of that paragraph should have read "about 7 times as much soil was lost from the uniform graded terrace as from the variable graded terrace." Also in the fourth line from the end of this paragraph the word "uniform" should be substituted for "variable."

W.W. McLaughlin left Berkeley November 16 for Washington, D.C. stopping in Chicago to attend the conference called by the Secretary, on Land Utilization. The last week in November was spent in Washington, D.C., discussing various phases of our work and attending the initial meeting of the newly organized Research Committee of the Bureau, of which he is a member. On the return trip, three days were spent in Chicago, the first in attendance at the meeting of the Structures and Machinery Division of the A.S.A.E., and the last two days as chairman of the Reclamation Section of the Society. Mr. McLaughlin returned to Berkeley December 6.

A. T. Mitchelson completed a field study of the feasibility of recharging the underground water supply by spreading winter water in the region surrounding Winters, Davis, and Dixon, California. His report was submitted early in November. Under Mr. Mitchelson's supervision, the area on which water-spreading experiments are being conducted in southern California has been increased by the addition of a third basin. The three plots are of the same size (0.38 acre) and represent the three different methods of spreading water. Due to heavy rains in that vicinity







recently, water is now available for submerging these basins and experiments will start as soon as the water is clear of silt.

L. T. Jessup completed his report on "Malheur and Harney Lakes, Oregon," November 14, and presented it on the witness stand the same day in connection with the case of the United States vs. Oregon. This investigation was made upon request of the Biological Survey in connection with its project to establish a bird refuge on Malheur Lake, which project involved the adjudication of water rights on the Blitzen River. One of the several interesting phases of this work was the study and correlation of tree ring growth with precipitation records for the purpose of determining in a general way what climatic conditions prevailed in 1859 and earlier in Harney Basin, Oregon. Measurements of four juniper trees were made with a device carrying a 14 power glass, for observations and readings were made to 0.1 millimeter. The study indicated that during the past 200 years there have been two drought periods of greater intensity than the present one, and the interval between major drought periods appears to be about 87 years.

O. A. Paris, upon request of the Texas Board of Water Engineers, made a three-day field trip in company with two representatives of the Board, to the vicinity of Eagle Pass on the Rio Grande, to inspect irrigation canals being constructed. The Board is concerned with the capacity of the canal excavated in shale. From Mr. Paris' observations along the Rio Grande, it seemed probable that sand would soon deposit and smooth out the irregularities on the canal bottom.

A. A. Young completed his work at Bonners Ferry, Idaho, in connection with the Kootenai project, and returned to his permanent headquarters at Santa Ana, Calif., where he will continue his investigations on consumptive use of water by salt grass in tanks. Arrangements have been completed for a change in method of measuring the daily use of water. Herebefore these measurements have been made by use of the Mariotte system of supply tanks. The water levels in the various tanks have been kept constant except for some seasonal changes made to enlarge the scope of the investigation. The use of covers to protect the tanks during rains will be discontinued, and the tanks will be wet by each rain. Daily records will be abandoned in favor of monthly totals. To obtain the monthly consumptive use, tanks will be sampled with a soil tube. Rainfall penetrating to the water table in each tank will be collected as overflow, and penetration records for various amounts of rainfall through different depths of soil will be obtained. Rainfall entering the soil will also return to the soil some of the alkali now on the surface.

Dean C. Muckel, who has been carrying on the work at Santa Ana during Mr. Young's absence, will assist Mr. Mitchelson this winter on water-spreading.

J. C. Marr spent the first half of the month of November assisting Mr. Jessup on the Malheur project work at Burns, Oregon.

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Mr. R. Lewis spent two days in the hydraulic laboratory of the Engineering Experiment Station at Hermiston, Oregon, in determining the flow of water through three samples of screen which it is proposed to use to screen out weed seeds. The data have not yet been worked up but apparently the screens will cut the flow about fifty per cent as compared with an open orifice.

Mr. Lewis prepared four radio talks on different types of pumps, for delivery over KOAC. He also prepared a paper on "Irrigation in the Willamette Valley with special reference to the problems of Nut Growers," which was delivered December 2 at the 17th Annual Meeting of the Western Nut Growers Assn.; and a paper on "Soil Moisture Control" for presentation before the Oregon State Horticultural Society at Hood River on December 11.

F. J. Fricke is preparing and checking summarized silt data for the calendar years 1924-1930; also tabulating silt data for the water year 1931.

Harry G. Nickle is conducting field work on consumptive use of water by canyon vegetation on the Devil Canyon, Coldwater Canyon and Mojave River projects, California, under the direction of Messrs. Elaney and Taylor. The Devil Canyon investigations are carried on in cooperation with the California Forest Experiment Station, to determine the run-off coefficients for the various portions of the watershed, and also to determine the amount of evaporation and transpiration from the different portions of the stream. Mr. Nickle reports that two new controls are being installed in Devil Canyon. These are located just above the junction of the two branches of the stream, one in each branch, and each control consists of a two-foot Parshall flume so arranged in conjunction with a small Venturi flume that the large flume will actuate the recorder as soon as the capacity of the small flume has been reached. The large flume is necessary to measure the winter flood flows while the small flume is necessary to accurately measure the small summer flow. Another control consisting of a three-foot flume in conjunction with a three-inch flume is already completed and is located at the Devil Canyon dam about a quarter of a mile downstream from the new controls.

Lloyd N. Brown reports in connection with his project on irrigation of cotton that some intensive work is under way on the various plots at Dos Palos, Calif., that have been under observation this past summer, in recording root penetration, size of plants, number of bolls, and other pertinent data. In connection with irrigation of asparagus, Mr. Brown reports that the owners of a large ranch in this vicinity are planning to flood most of their ranch this winter to wash out alkali.





Carl Rohwer submitted his report on Current Meters, consisting of a comprehensive study of the action of different types of current meters when rated under various conditions, and a comparison of the discharge from a standard Francis weir with that determined by different kinds of current meters, under various conditions, using different methods of measurement.

L. M. Winsor reports in connection with his project on Flood and Gravel Control that construction of lateral embankments for the experimental flood control structure at Parrish Creek, Utah, have been completed. The barrier also has been completed except for concrete work on the spillway which can not be done until mild weather, on account of the difficulty of protecting it against frost. Investigations relative to mapping out a State-wide flood protection program have been continued, and extended into Sanpete, Sevier, Piute, Garfield and Kane counties, Utah. Mr. Winsor also reports that investigations were made in Box Elder, Davis, and Salt Lake counties, to determine the condition of the soil with respect to moisture content at the beginning of excessively cold weather. This study is being made to determine the need for fall and early spring irrigation, and to carry further studies already made with respect to winter-killing following excessively dry seasons.

R. B. Gray and R. M. Merrill attended the Power and Machinery Section meeting of the A.S.A.E. at Chicago, November 30 and December 1. Then they inspected a new type of corn harvesting machine at Fort Dodge, Iowa, which appears to be easily adaptable to corn borer conditions. At Ames they conferred with Claude Shedd, Prof. Davidson, and E. V. Collins concerning dynamometers and power meters. Mr. Merrill also conferred with Dr. C. R. Sweeney of the Iowa Engineering Experiment Station concerning methods of harvesting cornstalks and the use of cornstalks in the manufacture of wallboard and other products. He returned to Toledo December 5. Mr. Gray proceeded to Peoria and inspected the new Diesel engine Caterpillar tractor. While this machine weighs and costs considerably more than the regular 60 horsepower "cat" it appears to have great possibilities. From there he proceeded to La Porte, Indiana and visited the Advance Rumely branch of Allis-Chalmers Company and discussed problems relating to their brush-type combine. Mr. Gray spent December 7 at Toledo discussing matters pertaining to corn borer control machinery and returned to Washington December 8.

S. W. McBirney returned to Toledo December 7 from Chicago where he was in charge of the corn borer control machinery exhibit at the International Live Stock Show.

Messrs. McBirney, Mauer, and Redit of Toledo, Cleaver of Urbana, Illinois, Shedd of Ames and E. D. Gordon of Jeanerette, were also in attendance at the A.S.A.E. Power and Machinery Section meeting at Chicago.





Frank Irons of the South Norwalk office inspected a new area of infestation of the corn borer in Accomac County, Virginia, November 16-19, in order to make recommendations for cleaning up this area by machinery. A truck load of equipment was then sent for this purpose and the work is now in progress under the direction of Mr. Irons.

A. H. Graves spent the week of December 7-14 at State College, Pa., in connection with cooperative studies with that station on plowing for corn borer control. Because of the marked increase in borer population this year over last, much interest is being manifested in control measures.

E. M. Mervine reports that progress in the development of beet machinery has been materially speeded up during the past year. Previously, attempts of individual inventors have shown little success because of lack of financial backing and because of knowledge bearing on local conditions only. Through Mr. Mervine's efforts the work of many of the larger agencies has been coordinated and real progress has been made. By carrying on the experiments in both California and Colorado climatic conditions permit of the performance of the equivalent of two years' work in one. Mr. Mervine is now in the Washington office for the purpose of planning expanded experimental work during the coming season, including fertilizer placement studies on beets.

G. A. Cumings returned November 20 from Chicago where he presented a report covering his work on fertilizer application before the Joint Committee on that subject. The committee in session decided that sufficient work had been done on fertilizer placement with respect to the seed in check rowed corn that it can make definite recommendations.

W. M. Hurst has completed the manuscript of the report covering his investigations on direct harvesting and artificial drying of rice. Apparently considerable work has yet to be done before rice can be combined successfully. From the drying investigations, however, it was found that under the conditions existing, a high quality of rice could be secured by artificially drying if the temperature did not exceed 120° F.

E. M. Dieffenbach spent several days at Belle Glade, Florida, where he conducted a test at the Everglades Experiment Station on a Couch pump.

One phase of the experimental work being carried on by the Everglades Experiment Station which is situated at Belle Glade, Florida, on the southeast shore of Lake Okeechobee, is being watched with considerable interest by truck and sugar cane growers. The use of the rich muck lands in that section depends largely on a satisfactory method of drainage. During the dry season of the past summer the water table reached a lower level than thought desirable for plant growth, so experiments are being conducted where the water table is being raised by pumping into the field canals. If these experiments are successful





the drainage pumps will have a two fold service, that of pumping out of the field canals during the wet season, and out of the lake into the field canals during the dry season. E. M. Dieffenbach has been conducting tests on these pumps.

J. W. Randolph reports that draft tests were conducted with a cultivator with a special dynamometer upon two soil types. Upon cotton plots on clay land where soil preparation and cultivation were variables, a draft of 313 pounds was obtained with a small middle buster upon the plot which produced 92 pounds of seed cotton. At the same depth upon plots having a yield of 848 pounds the draft was 180 pounds.

Twenty acres of land was rented adjacent to Alabama's Prattville Experimental field for use in cotton production and soil dynamics experiments.

The project on relation of stable temperatures to milk production, carried on by M.A.R. Kelley at Brook Hill Farm, Genesee Depot, Wisc., is progressing satisfactorily, though as yet there has been no weather severe enough to cause large fluctuations in milk yield in any of the five stables. With the cooperation of Mr. Greene, owner of the farm, and of University of Wisconsin, men are available to take data on stable conditions both day and night, to keep careful records of the physical condition of the cows, and to chart progress of the work from day to day. The final results of this work should be very valuable in showing what stable conditions are most suitable for milk production.

J.R. McCalmont has erected the experimental corn crib at the Toledo Experiment Farm and secured measurements of strain in floor and walls with the crib set at the 8-foot width and filled to heights of 8, 15, and 24 feet. The crib is to be widened to 10 feet and later to 12 feet and similar series of measurements taken on wall and floor members.

A. D. Edgar reports that temperature control in the experimental potato storage bins at Presque Isle, Maine, is working well, though early in the season the natural heat of the potatoes held temperatures somewhat higher than was desired. All potatoes in the warehouse under test are in good condition. Considerable difficulty with moisture condensation in farmers' storage houses has been observed. There are usually hillside cellars with room above for storage of machinery. Moisture rising from the potatoes passes through the ordinary type of upper floor - rough sawed boards - and condenses on the under side of the roof and on the machinery during cold weather. During warm periods this moisture drips upon and damages both machinery and potatoes. Mr. Edgar believes that this situation may be improved by proper insulation and ventilation.

Wallace Ashby spent December 15 and 16 at Toledo with J.R. McCalmont and the 17th at Genesee Depot, Wisconsin, with M. A. R. Kelley.





M. C. Betts reports that bids have been asked due January 15, 1932 for an equipment depot at Vancouver, Washington, for the use of the Bureau of Public Roads.

Work on the drawings for a group of buildings to be erected on Governor's Island, San Francisco, is progressing. This group will comprise 12 buildings and is intended for the use of the Bureau of Public Roads, Forest Service, and Coast Guard.

Drawings are being prepared for a creamery of 6,000 pounds of butter capacity for general use. This work is in cooperation with the Bureau of Dairying.

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Quarterly requirements for tires and tubes/due January 8th for 4th quarter Fiscal Year 1932.

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